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PCT/FR2003/050024



## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Translation

Applicant's or agent's file reference B10909 PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/FR2003/050024	International filing date (day/month/year) 04 août 2003 (04.08.2003)	Priority date (day/month/year) 05 août 2002 (05.08.2002)
International Patent Classification (IPC) or national classification and IPC G06F 17/30		
Applicant LTU TECHNOLOGIES		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 12 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 05 mars 2004 (05.03.2004)	Date of completion of this report 05 October 2004 (05.10.2004)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FR2003/050024

## I. Basis of the report

### 1. With regard to the elements of the international application:\*

- ☐ the international application as originally filed
- ☒ the description:  
 pages \_\_\_\_\_ 1-27 \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☒ the claims:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, as amended (together with any statement under Article 19  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_ 1-13 \_\_\_\_\_, filed with the letter of 01 September 2004 (01.09.2004)
- ☒ the drawings:  
 pages \_\_\_\_\_ 1/8-8/8 \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

### 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item. These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

### 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

### 4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/fig \_\_\_\_\_

### 5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FR 03/50024

I. Basis of the report

1. This report has been drawn on the basis of *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

1. New claims 1 to 13, as submitted by facsimile transmission of 31 August 2004, received 1 September 2004 and erroneously bearing application number FR03/50025, have been considered to be the basis for the examination subsequent to confirmation of the error by the applicant (facsimile transmission of 28 September 2004).

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FR 03/50024

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	1-13	YES
	Claims		NO
Inventive step (IS)	Claims	1-13	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-13	YES
	Claims		NO

## 2. Citations and explanations

## 1. Reference is made to the following document:

D1: EP 0878767 (Hitachi Ltd.)

2. D1 is considered to be the closest prior art. Said document describes a system and a method for detecting predetermined audio-visual sequences in any video sequences. Characteristic vectors are extracted from each image of the predetermined sequence, then stored as reference index. The corresponding characteristics of the current sequence are then extracted to form a current index, which is in turn compared to the reference index, thereby enabling detection.
- A video sequence consisting merely of one image is considered to be a single image.

A problem that D1 fails to solve is that the method proposed therein still lacks robustness with respect to certain kinds of photometric transformations (e.g.: high-frequency noise, change in contrast or luminosity), since the characteristics to be compared are directly linked to the pixel values of the image.

The solution of the invention lies in selecting a comparison distance that can be quickly assessed and has the advantage of calculating the capacity to predict the value of the pixels of an image X as a function of those of an image Y, without any particular hypothesis as to the nature of the photometric transformations linking X to Y, thereby rendering detection more robust. The comparison distance is based on the use of the reference marginal entropy, the current marginal entropy and the entropy of the two-dimensional histogram, as defined in independent claims 1 and 7 corresponding to the method and the system, respectively.

None of the prior art documents currently available, whether considered individually or in combination, discloses or suggests the technical features constituting the solution of the application.

Claims 1 to 13 therefore meet the criteria of novelty and inventive step of PCT Article 33(1), (2) and (3).

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